Claim Amendments

1 - 19. (Withdrawn).

20. (Original) A method of determining the effect of a gas of interest on a product within a package comprising the steps of:

    a. obtaining data representing the package's total transmission of a test gas, said test gas being different than said gas of interest;

    b. determining the package's transmission of the gas of interest based upon its test gas transmission;

    c. obtaining storage condition data representing the amount of the gas of interest in the atmosphere surrounding the package during storage; and

    d. obtaining data representing the sensitivity of the product to the gas of interest and determining the shelf life of the packaged product based upon the package's gas-of-interest transmission, the storage condition data, and the product sensitivity data, or obtaining data representing the shelf life of the packaged product and determining the sensitivity of the product to the gas of interest based upon the package's gas-of-interest transmission, the storage condition data, and the shelf life data.

21 - 28. (Canceled).

29. (New) The method of claim 20, wherein step d includes obtaining data representing the sensitivity of the product to the gas of interest and determining the shelf life of the packaged product based upon the package's gas-of-interest transmission, the storage condition data, and the product sensitivity data.

30. (New) The method of claim 29, wherein the product is a food product, a medical product, or a pharmaceutical product.

31. (New) The method of claim 29, wherein the test gas is helium.

32. (New) The method of claim 29, wherein the gas of interest is oxygen, water vapor, or carbon dioxide.

33. (New) The method of claim 20, wherein step d includes obtaining data representing the shelf life of the packaged product and determining the sensitivity of the product to the gas of interest based upon the package's gas-of-interest transmission, the storage condition data, and the

shelf life data.

34. (New) The method of claim 33, wherein the product is a food product, a medical product, or a pharmaceutical product.

35. (New) The method of claim 33, wherein the test gas is helium.

36. (New) The method of claim 33, wherein the gas of interest is oxygen, water vapor, or carbon dioxide.

37. (New) The method of claim 20, wherein step b includes:

   determining the package's test gas leakage and test gas permeation components of said total test gas transmission; and

   determining the package's transmission of the gas of interest based upon its test gas transmission and a correlation between test gas and gas-of-interest transmission.

38. (New) Apparatus for determining the effect of a gas of interest on a product within a package, the apparatus comprising stored data and a processor operating on the stored data in accordance with software, wherein the stored data includes data representing the package's total transmission of a test gas, the test gas being different than the gas of interest, storage condition data representing the amount of the gas of interest in the atmosphere surrounding the package during storage, and data representing the sensitivity of the product to the gas of interest, and the processor operates on the test gas transmission data to determine the package's transmission of the gas of interest, and the processor operates on the gas-of-interest transmission data, the storage condition data, and the product sensitivity data to determine the shelf life of the packaged product.

39. (New) The apparatus of claim 38, wherein the data pertaining to a test gas pertains to helium.

40. (New) The apparatus of claim 38, wherein the data pertaining to a gas of interest includes data pertaining to oxygen, water vapor, or carbon dioxide.

41. (New) The apparatus of claim 38, wherein the data pertaining to a product includes data pertaining to a food product, a medical product, or a pharmaceutical product.

42. (New) Apparatus for determining the effect of a gas of interest on a product within a package, the apparatus comprising stored data and a processor operating on the stored data in

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accordance with software, wherein the stored data includes data representing the package's total transmission of a test gas, the test gas being different than the gas of interest, storage condition data representing the amount of the gas of interest in the atmosphere surrounding the package during storage, and data representing the sensitivity of the product to the gas of interest, and the processor operates on the test gas transmission data to determine the package's transmission of the gas of interest, and the processor operates on the gas-of-interest transmission data, the storage condition data, and the shelf life data to determine the sensitivity of the product to the gas of interest.

43. (New) The apparatus of claim 42, wherein the data pertaining to a test gas pertains to helium.

44. (New) The apparatus of claim 42, wherein the data pertaining to a gas of interest includes data pertaining to oxygen, water vapor, or carbon dioxide.

45. (New) The apparatus of claim 42, wherein the data pertaining to a product includes data pertaining to a food product, a medical product, or a pharmaceutical product.